

Remarks

Applicant requests a reconsideration of the present patent application in view of the above amendments and following remarks. Claims 1, 3 and 5-7 have been amended. No claims have been cancelled. Claims 9-12 have been added. Therefore, claims 1-12 are pending in the application.

Claims 5 and 6 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended claims 5 and 6 to change the reference from a piston to a piston assembly. Therefore, Applicant requests that this rejection be withdrawn.

Claim 5 has been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,515,820 to Sugimoto et al. ("the Sugimoto reference"). Applicant respectfully traverses this rejection.

Amended claim 5 is directed to a lock-pin cartridge for a variable valve activation rocker arm. The lock-pin cartridge includes a body, a piston assembly, and spring means. The body has a closure at a first end and a partially closed second end. The piston assembly is disposed in the body and extends through the second end thereof for latching and unlatching the rocker arm. The piston assembly is spaced apart from the first end to define a hydraulic chamber in the body. The spring means is disposed in the body between the piston assembly and the partially closed second end for urging the piston assembly toward the first end.

The Sugimoto reference does not teach or suggest a lock-pin cartridge including spring means disposed in the body between the piston assembly and the partially closed second end of the body as recited in claim 5. In rejecting claim 5, the Examiner stated that the Sugimoto reference includes a spring (43) disposed in a body (29) between a piston (41) and a second end (the other end of 29, opposite to 36) of the body (29). See *Office Action*, pgs. 2-3. However, as best seen in FIG. 3 of the Sugimoto reference, the spring (43) is positioned within the piston assembly (32) between the piston (41) and the cylindrical body (42), not between the piston (41) and a partially closed end of the body (29). Moreover, the second end of the body (the other end of 29, opposite to 36) in the Sugimoto reference is not partially closed as recited in claim 5.

By positioning the spring between the piston assembly and the partially closed second end of the body, the lock-pin cartridge is a self-contained unit that may be pre-assembled as a subassembly thereby simplifying the overall assembly of the finger follower rocker arm assembly. See *Specification*, pg. 7, lines 10-13. The piston assembly (32) disclosed in the Sugimoto reference is not a self-contained unit since the spring (43) would tend to push the cylindrical body (42) out of the second end of the body (29), and the second piston (49) and spring (34) must be separately installed into an adjacent rocker arm (19₁). For at least this reason, Applicant requests that the rejection of claim 5 be withdrawn.

Claims 1, 2, 4, 7 and 8 have been rejected under 35 U.S.C. § 103(a) as being anticipated by the Sugimoto reference in view of U.S. Patent No. 6,325,030 to Spath et al. ("the Spath reference"). Applicant respectfully traverses this rejection.

Amended claim 1 is directed to a lock-pin cartridge for incorporation into a variable valve activation assembly to latch and unlatch a first member thereof from a second member thereof. The cartridge includes a body, a piston assembly, and biasing means. The body is disposable on the first member and has an axial bore with first and second ends. The first end has a closure, and the second end is partially closed and has a passage therethrough. The piston assembly has a locking pin and a piston disposed in the bore. The locking pin extends through the second end passage to provide the latching and unlatching of the first and second members. The piston is spaced apart from the first and second ends to define a hydraulic chamber and a spring chamber within the bore on opposite sides of the piston. The biasing means is disposed in the spring chamber between the partially closed second end and the piston for urging the piston assembly toward the first end.

In rejecting claim 1, the Examiner stated that the Sugimoto reference discloses the invention, but fails to disclose the body being disposable in a bore of the first member. *See Office Action*, pg. 4. However, Applicant submits that the Sugimoto reference does not disclose all of the limitations in the remaining portion of the invention recited in claim 1. In particular, the Sugimoto reference does not teach or suggest a lock-pin cartridge including spring means disposed in the spring chamber between the piston and the partially closed second end of the body as recited in claim 1. As stated above with respect to claim 5, Figure 3 of the Sugimoto reference shows that the spring (43) is positioned within the piston assembly (32) between the piston (41) and the cylindrical body (42), not between the piston (41) and a partially closed end of the body (29). Moreover, the second end of the body

(the other end of 29, opposite to 36) in the Sugimoto reference is not partially closed as recited in claim 1.

For at least this reason Applicant requests that the rejection of claim 1 be withdrawn. As claims 2 and 4 depend from claim 1, these claims are also not taught or suggested by the references of record for at least the same reason set forth with respect to claim 1. Applicant requests that the rejection of claims 2 and 4 be withdrawn.

Amended claim 7 is directed to a variable valve activation assembly wherein a first member is latchable and unlatchable from a second member thereof, comprising a lock-pin cartridge including a body, a piston assembly, and biasing means. The body is disposable on the first member and has an axial bore having first and second ends. The first end has a closure, and the second end is partially closed and has a passage therethrough. The piston assembly has a locking pin and a piston disposed in the bore. The locking pin extends through the second end passage to provide the latching and unlatching of the first and second members. The piston is spaced apart from the first and second ends to define a hydraulic chamber and a spring chamber within the bore on opposite sides of the piston. The biasing means is disposed in the spring chamber between the partially closed second end and the piston for urging the piston assembly toward the first end.

For at least the same reason set forth with respect to claim 1, Applicant requests that the rejection of claim 7 be withdrawn. As claim 8 depends from claim 7, this claim is also not taught or suggested by the references of record for at least

the same reason set forth with respect to claim 7. Applicant requests that the rejection of claim 8 be withdrawn.

Claim 3 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Sugimoto reference in view of the Spath reference, and in further view of U.S. Patent No. 6,394,052 to Miyasaka et al. ("the Miyasaka reference"). Applicant respectfully traverses this rejection.

Amended claim 3 is directed to a lock-pin cartridge for incorporation into a variable valve activation assembly to latch and unlatch a first member thereof from a second member thereof. The cartridge includes a body disposable on the first member and having an axial bore having first and second ends. The first end has a closure, and the second end is partially closed and has a passage therethrough. A piston assembly includes a locking pin and a piston disposed in the bore. The locking pin extends through the second end passage to provide the latching and unlatching of the first and second members. The piston is spaced apart from the first and second ends to define a hydraulic chamber and a spring chamber within the bore on opposite sides of the piston. A biasing means is disposed in the spring chamber between the first end and the piston for the said piston assembly toward the second end. The spring chamber comprises the first end and the hydraulic chamber comprises the second end.

In rejecting claim 3, the Examiner stated that the modified Sugimoto reference discloses the invention, but fails to disclose that the spring chamber comprises the first end and the hydraulic chamber comprises the second end. See *Office Action*, pg. 5. However, Applicant submits that the Sugimoto reference does not disclose all

of limitations included in the remaining portion of the invention recited in claim 3. In particular, the Sugimoto reference does not teach or suggest a lock-pin cartridge including biasing means disposed in the spring chamber between the piston and the first end of the body as recited in claim 3. As stated above with respect to claim 5, Figure 3 of the Sugimoto reference shows that the spring (43) is positioned within the piston assembly (32) between the piston (41) and the cylindrical body (42), not between the piston (41) and a first end (same side as chamber (36)) of the body (29).

Moreover, the second end of the body (the other end of 29, opposite to 36) in the Sugimoto reference is not partially closed as recited in claim 3. Likewise, the vane rotor (15) in the Miyasaka reference does not include a second end that is partially closed to provide for a self-contained lock-pin cartridge that may be pre-assembled as a subassembly as in claim 3. As best seen in FIG. 5 of the Miyasaka reference, a spring (36) is seated against a stopper member (39), which operates to bias the pin (37) away from the stopper member (39). Before the plate (7) is mounted to the vane rotor (15), there is nothing to prevent the spring (36) from pushing the pin (37) out of the bore (35) in the vane rotor (15) since the second end of the bore (35) is not partially closed. For at least these reasons Applicant requests that the rejection of claim 3 be withdrawn.

Claim 6 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Sugimoto reference in view of the Spath reference. Applicant respectfully traverses this rejection.

Claim 6 depends from claim 5 and therefore includes all of the limitations in claim 5. As stated above with respect to claim 5, the Sugimoto reference does not teach or suggest a lock-pin cartridge including spring means disposed in the body between the piston assembly and the partially closed second end of the body as recited in claim 5. In addition, the Examiner introduced the Spath reference to show that a piston assembly (22) may have an extension (76) extending through an aperture in its first end closure. See *Office Action*, pgs. 5-6. However, the first end of the body (28a) in the Spath reference does not include a closure, and therefore does not include an aperture in the closure as recited in claim 6. The lack of a closure portion in the first end of the body (28a) in the Spath reference results in an assembly that may not be pre-assembled as a subassembly because the spring (78) would push the piston (74b) and the button (76) out of the bore (84). As mentioned above, a similar problem exists with the assembly disclosed in the Sugimoto reference. For at least these reasons, Applicant requests that the rejection of claim 6 be withdrawn.

Conclusion

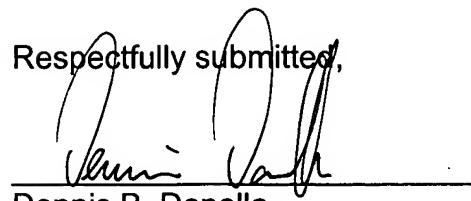
In light of the foregoing, Applicant submits that claims 1-12 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

The Commissioner is hereby authorized to charge the \$200.00 fee required for the extra independent claim, and any other fee that may have been overlooked,

to Deposit Account No. 10-0223.

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Respectfully submitted,



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